11: League of Nations--68 G-5 (no date) 1937 Laotians
116, 312, 364

"Lastly, in Laos, the centres of Vientiane and Luang-Prabang, which already have a supply of drinking-water obtained in the one case from wells and in the other form a spring, are extending and modernising their plant."

[123] [Illustration here]

CHAPTER IV

1. POPULATION

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The population of Laos is extremely sparse. For an area of 267,000 square kilometers there are only about 470,000 inhabitants (1).

(1) Official figure, taken from a report by the Superior Resident in Laos.

or an overall average of 176 inhabitants per hundred square kilometers. Southern Laos or Lower Laos has 300,000 inhabitants for 112,000 square kilometers, or 270 inhabitants per hundred square kilometers. Northern or Upper Laos, with an area of 155,000 square kilometers (33,000 more than the above), has only 170,000 inhabitants, or 110 inhabitants per hundred square kilometers.

[124] At the beginning of our occupation, and before a complete census of the country had been taken, it was supposed that the population was much larger. Some travelers even spoke of a population exceeding two million. A scholarly dictionary which appeared two years ago gives Laos from one to two million inhabitants, and the notice on Indo-China which was published on the occasion of the Exposition of 1900 has the figure vary between 600,000 and 800,000.

The low population density can be attributed to two causes:

1. The nature of the terrain;
2. Political events.

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Certain parts of Laos are poorly adapted to the cultivation of cereal grains, rice in particular, because of mountain peaks, thick forests or bare sandy spaces which are not at all favorable to the settlement of human groupings of any size.

The area of cultivable land is estimated at about 80,000 square kilometers, or about one-third of the total surface. These 80,000 square kilometers are not, moreover, evenly distributed. The southern part has a number of vast, low plains formed by the old alluvia of the Mékong. These are well irrigated or can easily be irrigated, and lend themselves particularly to farming. The northern part, on the other hand, is formed almost entirely of close-spaced mountain peaks with only comparatively narrow valleys between them

[312]

241 Lower Laos and 1.1 inhabitant in Upper Laos), the considerable expense
311 which the establishment of a registry would involve, and the slight interest attached to such a measure in a land where our advantage lies in exercising only an indirect administration, it is impossible for me to reply in any precise fashion.

"All that I can say is that the area of cultivable land is about 80,000 square kilometers, and that it is very unevenly distributed.
[312] The southern part of the possession does offer a certain number of vast plains which are well irrigated or can be irrigated and which are admirably suited to agriculture.

"The northern part, on the other hand, is almost exclusively made up of a series of juxtaposed mountain masses in a nearly unbroken line which leaves only an insignificant place for the rare valleys and plateaus satisfying the conditions required by agriculture.

"The area of cultivated land may be estimated arbitrarily at 30,000 square kilometers, distributed as follows:

Southern Laos, 20,000 square kilometers.
Northern Laos, 10,000 square kilometers.
} Giving about 15 inhabitants per cultivated square kilometer."

In the preceding chapter we gave a list of the plants which compose the flora of Laos. We shall supplement it here by studying those which are grown as regular crops.

243 RICE. Rice, being the basic food of the Laotians, occupies first place among the country's crops.

Two varieties of rice are grown in Laos, glutinous rice or "Nep" (in Annamite) which is called "Khao-Niaon" in Laotian, and dry rice or "Khao-Tiao" which is known in trade as Cochinchina white rice.

The first is more nourishing and contains a higher percentage of starchy matter. Because of its particular qualities, it is the type most widely cultivated for food and for the manufacture of alcohol.

Dry rice or "Khao-Tiao" is also cultivated, but in smaller quantities. It is primarily used for making pastry and for food by inhabitants of certain races which do not eat glutinous rice.

[554 262] Persons of a certain standing even go so far as to eat only "Khao-Tiao" out of ostentation.

Glutinous rice is grown in plains ricefields as well as in terraced ricefields on hillsides and in "Rais" or temporary clearings in the mountains.

243 262 In reality, this is neither always nor everywhere the case. There are bad years when, because of a shortage of water, production in the ricefields falls by 30 or 40 percent, and the natives are then obliged to turn for their food to the roots, yams and taros which they find in the forest.

[311] [356] It is the northern part of Laos which mainly suffers from this sad state of things, as a result of its hydrological régime, the particular disposition of its farming land, and the fragmentation of the latter into relatively small plots which are remote from one another.

312 In southern Laos the vaster plains and a more complete natural irrigation which can easily be increased as the need arises make it possible not only to satisfy local needs but also to provide paddy and threshed rice for export. Thus in 1898 900 tons of paddy were exported to Cambodia and Cochinchina (1).

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(1) These exports, which seem rather slight, will certainly increase provided that crops are good.

243 439 Here, by way of indication, are some current prices per hundred kilograms of paddy and decorticated rice:

Northern Laos	Paddy	4 francs 10 centimes to 9 francs
	Rice	8 francs 30 centimes to 10 francs 60 centimes
Southern Laos	Paddy	1 franc 65 centimes to 3 francs
	Rice	8 francs 30 centimes to 12 francs 50 centimes

243 In the figures given above as representing the amount of cereal grains needed to feed the population, we should include a certain quantity of maize. We do not have sufficient information to be able to show its importance with respect to the total production of cereals and consequently to say by how many tons the total figure for the paddy crop ought to be reduced in order for this difference to be applied to maize.

Nevertheless, if we take as a basis the total number of inhabitants who grow this crop, we may estimate that in northern Laos the ratio of maize production to that of paddy is about one to five. In southern Laos this crop is much less extensive.

149: Reinach--262 G-3 (no date) 1901 AM1 Indochina
Laotians AM8

Rice is grown in two different ways in Laos: in inundated ricefields on plains or hills, and in rais or [357] temporary mountain clearings. Only one crop is harvested per year, from November to January, since the Laotians do not practice artificial irrigation and count only on the water supplied by rain.

Maize is always grown in rais or on the edge of terraced hillside ricefields. In southern Laos only the Khas have any in their fields. The Laotians produce maize only in their gardens, as a vegetable.

Glutinous or aquatic rice grows well only on low, hot, swampy land where the soil is heavy. Dry rice, on the other hand, thrives only on ordinary soil which is moist and slightly sandy, and on heights up to an altitude of 1,800 meters where it can endure temperatures which are relatively low for tropical regions (5° and even lower).

Plains ricefields. The land in plains ricefields generally consists of soil containing a high percentage of vegetable matter. It is composed of alluvia worked by earthworms and containing organic vegetable matter in decomposition. The clayish and sandy soil is deep enough to permit growth and nourishment of the plant roots. It generally rests either on rock, or on a compact sediment or on an alluvial strata which has a higher clay content and has not been penetrated by worms. This bottom layer prevents the ground water which is indispensable to the growth of the grain from escaping.

Terraced ricefields. In the ricefields which are terraced or arranged in steps, and which are situated on hillsides or the lower slopes of the mountains which enclose high valleys, the layer of vegetable matter is fairly thin. This is due to the fact that rocky particles removed from the peaks by running water have been deposited on natural terraces where they form a kind of alluvial cone. Man's handiwork has extended and leveled them, and arranged them in such a way that the alluvia will not be carried lower. Dikes or levees of earth and stones limit the successive terraces which cover the slopes, like the steps of a gigantic stairway. They hold back the vegetable soil, and at the same time their inner faces [358] constitute the walls of irrigation canals which circulate from one step to another from the top of the hills to the bottom, diverting into the furrows, through slits which may be opened at will, the waters of a brook or torrent which has been captured at a higher level.

Rais. Rais take their name from a Siamese unit of area measurement which is applied to ricefields and which represents a square forty meters on a side, or 1,600 square meters. They are

243 clearings made in the mountains in the midst of the wild forest. All the vegetation cut down is burned where it falls, and its ashes constitute a fertilizer added to the humus in the soil.

Rais can generally be seeded for two years only, sometimes three but never more. They are abandoned at the end of this period, for the roots of the fallen vegetation are no longer there to hold the soil in place and rainwater, which is no longer screened and partly absorbed by the foliage of the trees and plants, strikes the denuded soil with force and gradually wears it away. Running water thus carries off all the vegetable particles one by one to the valley bottoms, sometimes leaving nothing but bare rock.

243 312 Farming methods. 1) Plains ricefields. The terrain is divided into more or less regular compartments which are nearly rectangular in shape and are 30, 40 or 60 meters on a side. They are separated from one another by earth dikes or levees which are .6 meter high and the same width at the base. Slits are pierced in the dikes to enable water to circulate and to permit the artificial swamps which each compartment or plains rai constitutes to be either inundated or drained. The canals which circulate through the ricefields are either diverted from a higher watercourse or else fed by various means which make it possible to raise water from a lower level.

243 Plowing is begun when the first rains have fallen and when the soil, which had acquired deep cracks under the action of the sun, has first soaked in water and then become sufficiently saturated.

This operation is carried out with the help of a rudimentary plow drawn by a buffalo and directed by a man. Furrows are thus [359] traced underwater in the semi-fluid, warm and nauseating mud of the ricefield. After this first operation the water is allowed to remain for a while, and then the ricefield is drained. It is harrowed and rolled, and water is again let in. Then the land is ready for transplanting the young rice plants.

The rice which is to supply plants for transplanting has been sowed in a chosen compartment which is sometimes [illustration here] fertilized (lime, buffalo and ox manure). When the young shoots reach a height of 15 to 20 centimeters in the seed-garden they are uprooted and re-planted in clusters of three or five plants each in the ricefield which has been prepared as above. Transplanting is done in squares or in a staggered arrangement, with the plants 30 to 40 centimeters apart.

In some parts of northern Laos there are even two successive trans-plantings two weeks apart. When they come out of the seed-garden

the plants are replanted a few centimeters [360] apart in a second seed-garden for growth. This procedure increases the plant's productivity quite appreciably.

Since the nature of the terrain and the richness of the soil vary from one point to another, it follows that the yield from the ricefields is not uniform. By reason of these conditions and the varying amount of water which falls on the fields or is piped in, this yield varies from 40 to 90 parts for one part of seed, and from 15 to 25 piculs per hectare (1). The rice is harvested about four or five months after

(1) In Cochinchina the average yield is from 28 to 30 piculs, and in Tonkin 44 piculs. But one should not lose sight of the fact that Cochinchina and Tonkin are much better favored than Laos from the point of view of irrigation, and that the Annamites are past masters in the art of farming.

transplanting.

2) Terraced ricefields. The soil is worked in the same way in these ricefields, except that in some cases the land is turned over with a spade instead of plowed.

3) Mountain rais. In the year following the one when the land was cleared, the soil of the rais is cleaned and weeded. Then in June the rice is sowed, either broadcast or else by dropping a few grains at a time into holes made with a kind of bamboo dibble.

The rais are harvested in October and even in September in some localities. In general the yield from rais is from 90 to 120 parts for one part of seed and from 10 to 20 piculs per hectare.

Maize is sowed directly in straight furrows about March or April, and is harvested in July.

TOBACCO. Tobacco (Ia-Doute) is widely consumed in Laos, where everyone smokes. It is also an excellent commodity for trade and export. It is cultivated on a large scale on the banks and islands of the Mekong from Pak-Lay to a point below Pone-Pissay. Production from the tobacco fields in these regions not only supplies local needs, but also those of all of Upper Laos and part of Lower Laos and provides tobacco for export to Siam and Cochinchina.

[361] In addition to the foregoing, almost the whole population along the banks of the Mekong and the lower reaches of its tributaries also grows tobacco for its own use and for the inhabitants of the interior. The tobacco which is most prized for its high quality, however,